Evidence-Base: Situation Monitoring

Situation monitoring is the process of actively scanning and assessing elements of the "situation" to gain or maintain an accurate awareness or understanding of the situation in which the team is functioning. In this module, we have extracted elements from the literature on effective team processes[1-3] to develop the STEP tool as a model for those new to monitoring situations in the delivery of health care. STEP includes the following elements that should be monitored and assessed: the status of the patient, team members, the environment, and progress towards the goal.

Marks, Mathieu, and Zaccaro identified three key elements that effective teams need to monitor during action phases, defined as "periods of time when teams are engaged in acts that contribute directly to goal accomplishment" (p. 360).[3] These elements include systems (both internal and environmental), the team itself, and progress towards the goal.

Systems monitoring includes tracking internal systems components (e.g., human resources and equipment), environmental conditions (e.g., number of OR rooms available, or status of other patients on the unit). Teams working in dynamic environments need to monitor and assess internal and external systems, allowing identification of changes that can impact tasks and/or the final goal. Recently, the Institute for Healthcare Improvement (IHI) highlighted Rapid Response Teams, in conjunction with the 100k Lives Campaign, to emphasize the need to respond more quickly to critical changes in the status of the patient (e.g., acute change in vital signs, acute drop in blood oxygen level, decreased urine output, altered mental function). By monitoring the patient's condition, utilizing Rapid Response Teams when appropriate, medical teams can help in preventing cardiac arrest or other adverse events.

Team monitoring refers to the process of observing, or cross-monitoring, the actions of fellow team members in an effort to identify errors, performance discrepancies, and areas in which another member can provide support.[1-3] Support encompasses feedback, coaching, performing back-up behaviors, and assuming or completing task work for another member.

Monitoring progress towards the goal refers to assessing the status of the team's taskwork in relation to achieving the goal. This type of information allows the team to continually assess the plan of care, the need for additional resources, and whether the established goals are being met my the team.

Shared Mental Models

The act of sharing and discussing information gained from situation monitoring provides the opportunity to gather more information about the situation and helps cultivate a mutual understanding. This mutual understanding is commonly referred to as s shared mental model.

Shared mental models are defined as organized knowledge structures of relevant facts and relationships about a task or situation that are commonly held by members of a team. Teams develop the plan, share the plan, and monitor the plan. In their review of the literature, Mohammed and Dumville[4] identified several constructs studied by various disciplines that are similar to the concept of shared mental models. Terms used by other disciplines include: information sharing, transactive memory, and cognitive consensus.

The information sharing literature, as summarized by Mohammed and Dumville,[4] examined information pooling behaviors in groups and distinguished shared information (information held by all members) from unshared information (information held by only one member). Given that teams are typically composed of

members with distinct roles who tend to have unique information, it is important to pay attention to the factors that promote and undermine the opportunity for team members to present and discuss their diverse information and observations.

The transactive memory literature advanced the concept of individual team member's memory systems regarding knowledge and expertise possessed by other team members. The important point of this literature is that each team member needs to be aware that they may have unique information that would benefit the team as a whole. As a result, opportunities for "sharing" information will be less about rehashing information that all members already possess and focus more on discussing and pooling unique and unshared information.

The literature on cognitive consensus defined this construct as the "similarity among [team] members regarding how key issues are defined and conceptualized" (p. 99).[4] In other words, team members who have cognitive consensus are more likely to interpret situational cues and other issues similarly. This literature adds to the shared mental model concept that team members share adequate knowledge of taskwork and teamwork, in addition to having a common understanding of the assumptions underlying significant issues. However, it should be noted that extreme levels of consensus can be dysfunctional in many situations; therefore, there needs to be a balance between diversity and consensus for optimal team effectiveness.

The basic premise regarding the relationship of shared mental models and teamwork is that team effectiveness will improve if team members have a shared understanding of the situation. Currently, there are many papers postulating the theoretical impact of shared mental models on team effectiveness; however, there is little empirical evidence substantiating this relationship due to the difficulty of measuring this cognitive construct at the group level. Nonetheless, the theoretical, empirical, and anecdotal evidence suggest that team members who possess shared mental models yield teams that:

- Can anticipate
- Back-up and fill-in for one another
- Communicate to ensure team members have the necessary information for task performance
- Team members understand each others' roles, and how they interplay

In health care if the wrong plan is developed potentially all actions that follow are wrong; and the patient and caregiver are at risk. A shared mental model serves as an error reduction strategy; caregivers understanding the plan monitor all actions relative to that plan.

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